NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date: DRAFT

Region: Winston-Salem Regional Office
County: Guilford
NC Facility ID: 4101269
Inspector's Name:
Date of Last Inspection:
Compliance Code:

Facility Data

Applicant (Facility's Name): LLFlex, LLC

Facility Address:
LLFlex, LLC
738 Gallimore Dairy Road
High Point, NC 27265

SIC: 3497/
NAICS: 322220/

Facility Classification: Before: Permit/Registration Pending **After:** Title V
Fee Classification: Before: N/A **After:** Title V

Permit Applicability (this application only)

SIP: 15A NCAC 02D .0515, .0516, .0521, 02Q .0504
NSPS: N/A
NESHAP: 15A NCAC 02Q .1111 (Subpart KK Area Source)
PSD: N/A
PSD Avoidance: 15A NCAC 02Q .0317
NC Toxics: N/A
112(r): N/A
Other: N/A

Note: This facility will have one year from beginning operation to file for a Title V permit.

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Jason Caple EHS Manager (502) 636-8462 1225 West Burnette Avenue Louisville, KY 40210	David Deptola Director of Operations (502) 636-8417 1225 West Burnette Avenue Louisville, KY 40210	Jason Caple EHS Manager (502) 636-8462 1225 West Burnette Avenue Louisville, KY 40210

Application Data

Application Number: 4101269.20A
Date Received: 03/13/2020
Application Type: Greenfield Facility
Application Schedule: State

Existing Permit Data
Existing Permit Number: N/A
Existing Permit Issue Date: N/A
Existing Permit Expiration Date: N/A

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP

<No Inventory>

Review Engineer: Kevin Godwin

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue: 10652/R00
Permit Issue Date: DRAFT
Permit Expiration Date: Date, 2028

I. Introduction and Purpose of Application

A. This Permit action is for construction of a Greenfield Facility in Guilford County. According to Application No. 4101269.20A, LLFlex, LLC is planning to construct a new paper coating (flexible packaging) manufacturing facility in High Point, NC.

B. The following equipment is planned for installation:
1. One (1) 1,200 feet/minute laminator and natural gas-fired 3-zone drying oven with 1.578 million Btu per hour, 2.976 million Btu per hour, and 2.579 million Btu per hour burners (ID No. ES-LAM-1),
2. One (1) 700 feet/minute laminator and natural gas-fired 3-zone drying oven with 1.578 million Btu per hour, 2.976 million Btu per hour, and 2.579 million Btu per hour burners (ID No. ES-LAM-2),
3. One (1) mixing room (ID No. IES-MIXROOM),

4. One (1) metal roller cleaner (ID No. IES-METALCLEAN), and
5. One (1) small Safety Kleen metal parts washer (ID No. IES-PARTSWASH).

As stated in the application, "Initial construction will not include add-on control devices. However, the facility is being designed with the capability to add two additional laminators in the future. This future modification may include add on controls."

C. The facility is requesting that this application be processed pursuant to 15A NCAC 02Q .0300 and be issued a construction permit separately from the requirement to obtain a Part 70 operating permit. Pursuant to 15A NCAC 02Q .0504(d), the facility will be required to apply for a Part 70 operating permit within 12-months of commencing operation.

II. Application Chronology

Received application	March 13, 2020
Draft to the Applicant and Winston-Salem Regional Office (WSRO)	May 29, 2020
30-day Public Notice per Director's Decision	June xx 2020 through July xx 2020
Permit Signed	XX

III. Process Description

As described in the application,
"Raw materials (paper, inks, foil, glue, film) are received via truck and dry stored until transferred to the manufacturing area. Various coating and ink mixtures are prepared in the mix room for delivery to the laminators. The lamination process begins with unwound lamination film fed into two (2) laminators that apply a water-based glue to the film. This film is then adhered to a paper or foil-based substrate via rollers to compress the layers together. For some products, the rollers apply ink for specific color specifications. Most of the inks are water-based to minimize volatile organic compound (VOC) emissions. Each laminator will be equipped with 3-zone ovens to dry the finished laminate product. At oven exit, the laminated/printed products are rewound and prepared for shipping."

IV. Potential Emissions

According to the application, potential to emit (PTE) calculations were developed assuming continuous application of worst-case VOC and HAP/TAP containing materials and from the design heat input of the oven burners. The application goes on to describe the basis for emissions calculations as follows:

A. Laminators (ES-LAM-1 and ES-LAM-2) – The facility will apply several laminator mixture variations of inks and coatings referred to as "kits". The kit with the highest VOC content (Kit C3184) was used to calculate the highest VOC emission rate assuming the laminators operating at 100% capacity. Similar PTE calculations were completed assuming 100% application of Kits C12733W, C106123W and C1002W since they contain acrylic acid, diethylene glycol monobutyl ether, and styrene.

Emissions from natural gas combustion were estimated using the DAQ emission calculation spreadsheet.

The following table taken from the application provides a summary of VOC emissions from the Laminators using the worse-case mixture variations with the highest VOC content.

Emission Source	**Worst Case Kit**	**VOC Content** (lbs/gal)	**Actual Emissions[1]**		**Pre-Control/Limits Emissions**		**Post-Control/Limits Emissions[2]**	
			lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
ES-LAM-1	C3184	6.093	503.86	30.59	503.86	2206.90	503.86	123.80
ES-LAM-2	C3184	6.093	499.66	30.34	499.66	2188.53	499.66	122.77

1. Assumed 20,000 gallons usage similar to existing laminator operations in Louisville, KY.
2. Post-control emissions equate to VOC-based C3184 usage of 80,926 gallons.

Data used in hourly VOC calculation:
Worst case annual solid usage per year = 735,840 lbs solids/yr
Solid concentration per gallon = 1.016 lbs solids/gallon
VOC concentration per gallon = 6.092 lbs VOCs/gallon
VOC from natural gas = 0.08 lbs N.G. VOC/hr

Sample calculation:

VOCs = [(lbs solids/year) x (gallons/lbs solids) x (lbs VOC/gallon) x (1 year/8760 hours)] + lbs N.G. VOCs/hr

For ES-LAM-1 Worst-Case Kit (C3184):

$$VOCs\ \left(\frac{lbs}{hr}\right) = \left[\frac{735{,}840\ lbs\ solids}{yr}\ x\ \frac{1\ gallon}{1.016\ lbs\ solids}\ x\ \frac{6.092\ lbs\ VOCs}{gallon}\ x\ \frac{1\ year}{8760\ hour}\right] + \frac{0.08\ lbs}{hour} = \frac{503.75\ lbs}{hr}$$

Based on both laminators applying the worst-case material for 8,760 hours per year, uncontrolled PTE is much greater than 250 tpy for VOC emissions. However, the applicant states that actual material usage will be approximately 90% water-based materials and 10% solvent based. The facility will be required to monitor, record, and report monthly material usage of VOC containing materials, VOC mass fractions in material mixes applied in the laminators, and VOC emissions.

B. Mixing Room (IES-MIXROOM) – Material kits will be prepared in a mixing room prior to application at the laminators and is expected to contribute to facility-wide emissions via a dedicated exhaust stack. The mixing room emissions were estimated assuming a 1% weight loss of the total emissions from the worst-case compound mixtures used in emission calculations for laminators. Kit C3184 provides the worst-case VOC emissions scenario for each laminator and mixing room due to its high VOC content.

C. Metal Roller Cleaner (IES-METALCLEAN) – The facility will periodically clean the metal rollers using an enclosed pressure washing system using a caustic detergent solution. According to Safety Data Sheet, the cleaning solution contains a small amount of low vapor pressure, exempt VOC. Potential emissions were calculated assuming 500 gallons per year usage.

D. Metal Parts Cleaner (IES-PARTSWASH) – The facility will utilize a small metal parts washer supplied by Safety Kleen. According to the Safety Data Sheet, the cleaning solution contains a small amount of low vapor pressure, exempt VOC. Potential emissions were calculated assuming 500 gallons per year usage.

The following table provides a summary of facility-wide actual and potential criteria pollutant emissions.

Pollutant	**Actual Emissions @ 8760 hrs/year**		**Potential Emissions @ 8760 hrs/year**		**Potential Emissions @ 8760 hrs/year using 90% water based materials**	
	lbs/hour	**tpy**	**lbs/hour**	**tpy**	**lbs/hour**	**tpy**
Particulate matter	0.01	0.044	0.01	0.044	0.01	0.044
Sulfur dioxide (SO_2)	0.01	0.044	0.01	0.044	0.01	0.044
Nitrogen oxides (NOx)	0.70	3.07	1.40	6.13	0.70	3.07
Carbon Monoxide (CO)	1.17	5.12	1.17	5.12	1.17	5.12
Volatile organic compounds (VOC)	1013.75	4440.23	1013.75	4440.23	varies	less than 250

Pollutant	Actual Emissions @ 8760 hrs/year		Potential Emissions @ 8760 hrs/year		Potential Emissions @ 8760 hrs/year using 90% water based materials	
	lbs/hour	tpy	lbs/hour	tpy	lbs/hour	tpy
Hazardous Air Pollutants (HAP)				20.0 single HAP 29.1 combined HAP		8.2 single HAP 12.1 combined HAP

V. Regulatory Review – Specific Emission Source Limitations and Conditions

A. 15A NCAC 02D .0515 "Particulates from Miscellaneous Industrial Processes" – This regulation establishes an allowable emission rate for particulate matter from any stack, vent, or outlet resulting from any industrial process for which no other emission control standards are applicable. This regulation applies to Total Suspended Particulate (TSP) or PM less than 100 micrometers (µm). The allowable emission rate is calculated using the following equation:

$E = 4.10 \times P^{0.67}$ for $P < 30$ tph
$E = 55 \times P^{0.11} - 40$ for $P \geq 30$ tph

where, E = allowable emission rate (lb/hr)
P = process weight rate (tph)

According to the application, the most significant source of PM emissions is the laminators. The maximum PM emission rate is 0.01 pounds per hour. Due to the low amount of PM emissions relative to the expected process weight rate, compliance is indicated. No monitoring, recordkeeping, or reporting is required.

B. 15A NCAC 02D .0516 "Sulfur Dioxide from Combustion Sources" – This regulation establishes a sulfur dioxide emission standard of 2.3 lbs/million Btu heat input for combustion sources. The oven burners combust natural gas, which contains low amounts of sulfur and will result in $S0_2$ emissions below the limit. Compliance is indicated. No monitoring, recordkeeping, or reporting is required.

C. 15A NCAC 02D .0521 "Control of Visible Emissions" – This regulation establishes a visible emission standard for sources based on the manufacture date. For sources manufactured after July 1, 1971, the standard is 20 percent opacity when averaged over a 6-minute period except under the following conditions:

1. No six-minute period exceeds 87 percent opacity,
2. No more than one 6-minute period exceeds 20 percent opacity in any hour, and
3. No more than four 6-minute periods exceed 20 percent opacity in any 24-hour period.

The Permittee will be required to establish 'normal' visible emissions from these sources within the first 30-days of the permit effective date. In order to demonstrate compliance, the Permittee will be required to observe actual visible emissions on a monthly basis for comparison to 'normal'. If emissions are observed outside of 'normal', the Permittee shall take corrective action. Recordkeeping and reporting are required. Because all emission sources are designed to be well controlled, compliance with this standard is expected.

VI. Regulatory Review – Multiple Emission Source Limitations and Conditions

A. 15A NCAC 02D .0966 "Paper, Film, and Foil Coatings" – This regulation has applicability based on 15A NCAC 02D .0902, which states that 02D .0966 only applies in Cabarrus, Gaston, Lincoln, Mecklenburg, Rowan, and Union Counties, and Davidson Township, and Coddle Creek in Iredell County. The facility will not be located in these areas, and therefore the Rule does not apply.

B. 15A NCAC 02Q .0317 "Avoidance Conditions" for avoidance of 15A NCAC 02D .0530 "Prevention of Significant Deterioration (PSD)" – Based on both laminators applying the worst-case material for 8,760 hours per year, uncontrolled PTE is greater than 250 tpy for VOC. Actual material usage will be approximately 90% water-based materials and 10% solvent based. This will result in VOC emissions less than 250 tpy. The facility is requesting a condition be placed in the Permit to limit VOC emission to less than 250 tpy. The facility will be required to monitor, record, and report monthly material usage of VOC containing materials, VOC mass fractions in material mixes applied in the laminators, and VOC emissions.

C. 15A NCAC 02Q .0317: Avoidance Conditions for Being Classified as a Major Source Under 15A NCAC 02D .1111 Maximum Available Control Technology (MACT) Standards- Based on potential hazardous air pollutant (HAP) emission, the facility would be classified as a major source under 40 CFR Part 63, Subpart KK – NESHAP for the Printing and Publishing Industry. The facility is requesting a condition be placed in the Permit to limit HAP emissions to less than 10/25 tpy and be classified as an area source. The facility will be required to monitor, record and report monthly material usage of HAP containing materials, HAP mass fractions in material mixes applied in the laminators, and HAP emissions.

D. 15A NCAC 02D .1111: MACT Standards, Subpart KK – This regulation will apply to the facility since it is a product and packaging rotogravure process. Subpart KK applies to both major and area HAP sources in the printing and publishing industry. With the requested avoidance limit, §63.820(2) applies to the facility as a new, area HAP source and, pursuant to §63.820(3), is only subject to the recordkeeping [§63.829(d)] and reporting [§63.830(b)(1)] provisions of Subpart KK.

1. §63.829(d) – *Recordkeeping*
   The facility must maintain records of all required measurements and calculations needed to demonstrate compliance, including the mass of all HAP containing materials used and the mass fraction of HAP present in each HAP containing material, on a monthly basis.
2. §63.830(b)(1) – *Reporting*
   Pursuant to 63.3(b)(1)(iii), affected sources required to submit an initial notification may use the application for approval of construction to fulfill the initial notification requirement. The facility is requesting that this application serve as notification that the laminators are subject to Subpart KK.

E. 15A NCAC 02Q .0503(8) "Insignificant Activities" – Insignificant activities at a major Title V facility are any activity whose emissions would not violate any applicable standard and whose potential emissions of criteria pollutants before air pollution control are each no more than 5 tons per year. As shown in Tables 2 and 11 of the application, potential VOC emissions from the Mixing Room, Metal Roller Cleaner, and Metal Parts Cleaner are each less than 5 tons per year and qualify as insignificant activities and will be include in an attachment to the Permit cover letter.

F. 15A NCAC 02Q .0700 "Toxic Air Pollutant Procedures" – According to the application, styrene is the only expected toxic air pollutant (TAP) potentially emitted from the current, active kit formulations. The emission rate will be below the Toxic Permit Emission Rate (TPER) of 11.16 pounds per hour listed in 02Q .0711 and will not cause an unacceptable health risk. Pursuant to 15A NCAC 02Q .0702(a)(27)(B), a permit to emit TAPs will not be applicable since 40 CFR 63, Subpart KK is applicable.

The following two requirements will be added to the State 300 permit because the General conditions for an "R" permit do not contain these two requirements. These requirements are included in the General Conditions in the Title V permit.

G. NOTIFICATION REQUIREMENT - As required by 15A NCAC 2D .0535, the Permittee of a source of excess emissions that last for more than four hours and that results from a malfunction, a breakdown of process or control equipment or any other abnormal conditions, shall:

1. Notify the Director or his designee of any such occurrence by 9:00 a.m. Eastern time of the Division's next business day of becoming aware of the occurrence and describe:

   a. the name and location of the facility,

b. the nature and cause of the malfunction or breakdown,
c. the time when the malfunction or breakdown is first observed, the expected duration, and
d. an estimated rate of emissions.

2. Notify the Director or his designee immediately when the corrective measures have been accomplished.

This reporting requirement does not allow the operation of the facility in excess of Environmental Management Commission Regulations.

H. Fugitive Dust Control Requirement [15A NCAC 02D .0540]

As required by 15A NCAC 02D .0540 "Particulates from Fugitive Dust Emission Sources," the Permittee shall not cause or allow fugitive dust emissions to cause or contribute to substantive complaints or excess visible emissions beyond the property boundary. If substantive complaints or excessive fugitive dust emissions from the facility are observed beyond the property boundaries for six minutes in any one hour (using Reference Method 22 in 40 CFR, Appendix A), the owner or operator may be required to submit a fugitive dust plan as described in 02D .0540(f).

"Fugitive dust emissions" means particulate matter from process operations that does not pass through a process stack or vent and that is generated within plant property boundaries from activities such as: unloading and loading areas, process areas stockpiles, stock pile working, plant parking lots, and plant roads (including access roads and haul roads).

VII. Other Regulatory Considerations

- An application fee of $10,177 is required for this Title V Greenfield application and was received by DAQ on March 13, 2020.
- The appropriate number of application copies was received by DAQ.
- A Professional Engineer's Seal is not required for this application.
- Receipt of the request for a new zoning consistency determination was acknowledged by Christopher Andrews, City of High Point, Development Administrator on January 10, 2020. The proposed operation is consistent with applicable zoning ordinances.
- Public notice is not required for this State Permit issued under 15A NCAC 02Q .0300.
- Emission Source Module (ESM) update was verified on June 4, 2020.
- According to the application, the facility does not store any materials in excess of the 112r applicability threshold and is therefore not required to maintain a written risk management plan (RMP).
- The application was signed by Mr. David Deptola Director of Operations on March 10, 2020 as the Responsible Official.

VIII. Public Comment Period

This greenfield facility requested a State 300 permit which would allow them to construct and operate this facility prior to obtaining a Title V permit. Once constructed, this facility is required to submit a Title V permit application within one year of beginning operation of any of the sources requested in the initial application. Because this is a greenfield facility, the Director has decided to send the application and permit through a 30-day public notice and alerted the Environmental Justice Group of the new facility location. The EJ group reviewed and evaluated the location of this new facility and decided that an EJ report is not necessary based on their screen of the area in North Carolina.

30-day Public Notice: June xx 2020 through July xx, 2020
XXX comments were received during the 30-day comment period.

This facility will go through both a 30-day public notice and 45-day EPA review after the submittal of the Title V application.

IX. Recommendations

This application has been reviewed by DAQ to determine compliance with all procedures and requirements. The Division has determined that this facility appears to be or is expected to achieve compliance as specified in the permit with all applicable requirements. A draft permit was provided to the Winston-Salem Regional Office (WSRO) on May 29, 2020. WSRO responded with comments to the draft on June 3, 2020. A draft permit was provided to the applicant on May 29, 2020. The applicant responded with comments on June 2, 2020. All comments have been addressed. DAQ recommends issuance of Permit No. 10652R00.